

not get changed. This could happen daily or weekly for example. In some embodiments, when the ballot is presented to the voter through application **1401** the application can check the verification hash against the application computed hash of the ballot before presenting to the voter. The hash of the ballot presented to the voter could also be reported by the mobile app for validation by an independent auditor. The hash of the ballot and the hash of the voter choices could also be calculated and stored at the time of vote submission by the voter from their application **1401**. A screenshot from the device for each of the voter's choice could also be recorded and stored anonymously with a 'weak link,' e.g. an unbound key pair, to the cast vote. This will allow any auditor a visual aid for comparing and verifying the vote that was cast. Additionally, at the time of vote tabulation, hash verification can be required to ensure that only untampered ballots are being included in the extract.

[0131] The auditability features and metrics can analyze, compare, and/or include the numbers of: votes cast, broken down by each choice; rejected votes, broken down by each choice; the number of votes waiting for signature verification, broken down by each choice; accepted votes, broken down by each choice; abandoned attempts and disruptive errors; and questions answered. This data can be used after an election for tracking an accuracy of the vote information extracted from the voting application to the voting jurisdiction's tabulation process. The data can also provide useful information to the election official during the election.

[0132] For Ballot security, the intended ballot gets presented and voted upon as finalized by the election office or election official. The success factors for ballot security can include: ballots being stored within the system and a verification has computed and stored on the blockchain; a periodic audit of the most current ballot contents and the verification hash stored by an external verifier; and an application attempting to display the accurate ballot or an auditor wishing to validate the integrity of the ballot can simply compare the verification hash on the ballot and compare it to the has of the presented ballots on the voters' devices.

[0133] A ballot presentment check can include retrieving verification hashes independently from any of the 3rd party locations and compared against the hash computed on the ballot that the application is about to present. In case of any difference between the hashes, the app can signal a possible variance in the ballot content integrity. An auditor can compare the hashes of the possible ballot styles and sample the hashes of ballots presented to voters from various precincts and find a match. Any instance of incorrect ballot presentment instances can be identified and flagged.

[0134] FIG. 16 displays a flow chart demonstrating one embodiment of how a user can create an account to use the secure voting system. The flow chart starts with process block **1601**. In process block **1601** a voter selects login button on the landing page of the VBM blockchain application. In some embodiments, this VBM blockchain application can be application **1401**. The process then proceeds to process block **1602**.

[0135] In process block **1602**, the voter selects an "add account" button on a select account screen in the VBM blockchain application. The process the proceeds to process block **1603**.

[0136] In process block **1603**, the voter selects a create VBM account button on the sign in screen in the VBM blockchain application. The process then proceeds to process block **1604**.

[0137] In process block **1604**, the voter enters his name, unique ID (voter registration ID), email, and password then selects a create your VBM account button on the create account screen on the VB blockchain application. The process then proceeds to process block **1705**.

[0138] In process block **1605**, the voter reviews a personal attributes such as address and precinct details and then confirms those details with the VB blockchain application. The process then proceeds to process block **1606**.

[0139] In process block **1606**, the voter sets up multi-factor authentication by entering a phone number and selecting preferred means of sharing verification codes using the VB blockchain application. The process then proceeds to process block **1607**.

[0140] In process block **1607**, the voter verifies the multi-factor authentication by entering the code sent to his or her device using the VB blockchain application. The voter's account is now added to the device.

[0141] FIG. 17 displays a flow chart demonstrating one embodiment of how an election official can load a list of voters that can use the system. The process starts with process block **1701**. In process block **1701**, an election official opens up a VBM web application and enters their username and password. In some embodiments, the VBM web application can be the vote by mail election official application **1403**. The process the proceeds to process block **1702**.

[0142] In process block **1702**, the election official selects the manage voters button from the ribbon in the VBM web application. The process then proceeds to process block **1703**.

[0143] In the process block **1703**, the election official selects the import voters button in the VBM web application. The process then proceeds to process block **1704**.

[0144] In process block **1704**, the election official uploads the latest excel version of the voter registration list or other data file contain the voter registration list into the VBM web application.

[0145] FIG. 18 displays a flow chart demonstrating one embodiment of how a user can log in to an account to use the secure voting system. The process begins with process block **1801**. In process block **1801**, the user selects the login button on the landing page of the VBM blockchain application. In some embodiments, the blockchain application can be application **1401**. The process then proceeds to process block **1802**.

[0146] In process block **1802**, the voter selects his/her account on the select account screen of the VBM blockchain application. The process then proceeds to process block **1803**.

[0147] In process block **1803**, the voter enters his or her email address and password on the sign in screen on the VBM blockchain application. The process then proceeds to process block **1804**.

[0148] In process block **1804**, the voter reviews the voter's profile containing personal attributes such as address and precinct and confirms details using the VBM blockchain application. The process then proceeds to process block **1805**.